Introduction

Pedestrians are an integral part of any transportation system. Any driver becomes a pedestrian the moment he or she leaves a vehicle or bicycle. Public transportation users are pedestrians when they walk to the public transit stop and again when they walk to their destination. If the entire transportation system is to function efficiently, we must plan for the needs and expectations of people who walk. This publication is intended to make the places we walk safer, more comfortable, and more desirable as destinations.

According to *Mean Streets 2004*, a Surface Transportation Policy Project, the city of Phoenix has the tenth highest pedestrian danger index (PDI), 117.2. The PDI compares the annual rate of pedestrian deaths relative to the number of people who walk in a community. This high score is attributed to sprawling, low-density development connected by high speed arterials. However, this number is down 12 percent from the 1994-1995 PDI. The 2004 report states that 4,827 people died in 2003 while walking down the street, down from 4,919 in 2002. In each of these same two years, there were 70,000 injuries. In Arizona, there were 156 fatalities in 2002, and 125 in 2003, an average annual rate per 100,000 residents of 2.55 percent. However, spending on pedestrian projects is not commensurate with the apparent need. Says *Mean Streets 2004*, "Nationally, less than one percent of federal transportation funds have so far been spent on pedestrian facilities".

Background

The Maricopa Association of Governments (MAG) Regional Council formed the Pedestrian Working Group in 1993 to educate the region about pedestrian issues, and to promote the development of facilities for people to walk. The Working Group consists of MAG members, and representatives of the planning, architecture, landscape architecture, and development communities.

A pedestrian gathering area.

What is a Pedestrian Facility?

- **a sidewalk**
- **a path or trail**
- **a crosswalk/mid-block crossing**
- **a traffic calming feature**
- **an under and overpasse/grade separation**
- **a wide shoulder**
- **other elements that encourage pedestrian movement, such as landscaping, public art, and site furniture**

In 1993, in order to discover what the needs and expectations of pedestrians were in this region, the MAG Pedestrian Working Group analyzed 15 local sites with varying degrees of pedestrian accommodations. The data identified potential origins and destinations for pedestrians, the perceptions of personal safety and security held by people who walk, reasons for walking, pedestrian counts, long range plans for the area, physical measurements, and other pedestrian facilities. The MAG *Pedestrian Area Policies and Design Guidelines* were the result of this effort in 1995.

Since the document was completed, Valley planners and designers have had a chance to read and use the document and put the guidelines into practice. Additionally, there are new studies in several areas of pedestrian activity, including Safe Routes to School, elderly mobility, and changes in the Americans with Disabilities Act Accessibility Guidelines (ADAAG). This update of the Policies and Guidelines incorporates this new data and creates a more user-friendly document.

THE PURPOSE OF THE GUIDELINES

The *Pedestrian Area Policies and Design Guidelines* are intended to provide a source of information and design assistance to support walking as an alternative transportation mode. Through application of the policies and design guidance in this document, jurisdictions, neighborhoods, land planners, and other entities will be able to: 1) better recognize opportunities to enhance the built environment for pedestrians; 2) better create and redevelop pedestrian areas throughout the region that integrate facilities for walking with other transportation modes; 3) support the development of areas where walking is the preferred transportation mode; and 4) encourage the development of other independent pedestrian-focused transportation facilities.

The policies and specific design guidelines in this document accomplish this intent by providing policy and design guidance to make all pedestrian areas and facilities safe, comfortable, and a destination for people who use them. Each of these purposes is described below.

A grand announcement to a pedestrian area.

Safety

First and foremost, a transportation facility must be safe. This update includes recommendations and guidelines directed toward making all pedestrian facilities **safe** for users of all abilities. These minimum levels of safety that should be met in all circumstances include: providing a defined walkway for exclusive pedestrian use that is a minimum 6-feet wide; a walkable surface that is clear of impediments; has ramps where needed; is physically or horizontally separated from vehicular traffic; and is lit at roadway crossings. There are several elements of design, in particular ramps, driveway crossings, and median crossings that, if the project is new, should be built to the standards of the comfortable level to meet ADAAG.

Comfortable

After safety, there are design options and amenities that can make a pedestrian area **comfortable** and encourage more walking. These include: wider walkways (7 to 12 feet or more); two or three options for physically or horizontally separating the walkway from traffic; reducing the number of driveway crossings; providing places to sit; or adding traffic calming features.

Pedestrians enjoy a comfortable, shady spot.

Destination

Lastly, pedestrian areas that are safe and comfortable can be made **destinations** unto themselves, to which people walk to and walk within. Destinations are places where walking is considered a predominant, if not the only, mode of transportation. They often have extensive amenities which include specialty paving, themed signs and site furnishings, decorative lighting fixtures, street vendors, and an active street.

These guidelines additionally incorporate the principle of universal design. Universal design is a philosophy of facility design that seeks to maximize the suitability of a facility for ease of use by the greatest number of people. It emphasizes the value of designing facilities for a person's entire lifespan and range of abilities. The seven principles of universal design are:

- *equitable use*
- *flexible use*
- *simple and intuitive use*
- *perceptible information*
- *tolerance for error*
- *low physical effort*
- *size and space for approach and use*

(Accessible Environments: Toward Universal Design. Mace, Hardie & Place, 1991).

Universal design recognizes that all users benefit when facilities can be easily used by people with a wide range of abilities. For example, a ramp to the entrance of a building is often used by parents pushing strollers or workers moving equipment on trolleys. These people benefit in addition to individuals with disabilities who use wheelchairs or scooters and their families, friends, and associates. Furthermore, incorporating the principles of universal design at the early stage of a project is far less expensive than having to go back and retrofit inaccessible facilities. In addition, this document is in conformance with **the ADA Draft Public Rights-of-Way Accessibility Guidelines.**

These Guidelines refer to several widely used transportation manuals such as the *Manual on Uniform Traffic Control Devices* (MUTCD); the *A Policy on Geometric Design of Highways and Streets* (also known as the *Green Book*) of the American Association of State Highway Transportation Officials (AASHTO); and the AASHTO *Guide for the Planning, Design and Operation of Pedestrian Facilities*. However, the warrants and standards referred to in these manuals do not always meet the pedestrian's needs. To better provide for pedestrians, this document suggests alternative design standards that could be applied in specific pedestrian areas. At a minimum, AASHTO, the MUTCD, and other accepted or adopted jurisdictional design standards must be met.

Finally, this document includes simple how-to information on implementing programs to increase awareness about pedestrians and the facilities that they require.

WHAT ARE THE BENEFITS OF THIS EFFORT

When we create places where people walk, we contribute to the health, economy, and livability of our communities. The many contributions of walking to our communities have been recognized on a national scale and have spawned national movements such as *healthy communities* and *active living*. Federal, state, and local governments have all started to re-examine our built environment and retrofit and design places to safely and comfortably walk.

Health

In Arizona, the number of people who report being obese has increased five percent between 1991 and 2001. Arizona is not unusual. Obesity in the United States is truly epidemic. In the last ten years, obesity rates have increased by more than 60 percent among adults. Approximately 59 million adults are obese. Since 1980, obesity rates have doubled among children and tripled among adolescents. Of children and adolescents aged 6 to 19 years, 15 percent —about 9 million young people—are considered overweight.

Despite the proven benefits of physical activity, more than 60 percent of American adults do not get enough physical activity to provide health benefits. More than a third of young people in grades 9 to 12 do not regularly engage in vigorous

Pedestrian Friendly Communities [1]

- **have a healthy town center**
- **have mixed uses**
- **have public gathering places**
- **are designed for universal access**
- **have slowed traffic on key pedestrian streets**
- **have a linked pedestrian system**
- **provide most services within a walkable distance of most homes (¼ to ½ mile)**
- **were designed first for people, then for vehicles**
- **have human scale buildings**
- **have lots of people walking**
- **prioritize spending to focus on the pedestrian environment**
- **have visionary leaders**

[1] *Burden, Dan. How Can I Find and Help Build a Walkable Community. (http://walkable.org/article1.htm).*

physical activity. Unhealthy diet and physical inactivity play an important role in many chronic diseases and conditions, including type 2 diabetes, hypertension, heart disease, stroke, breast cancer, colon cancer, gallbladder disease, and arthritis.

These statistics come at a great cost to our nation. Among children and adolescents, annual hospital costs related to obesity were $127 million during 1997–1999 (in 2001 constant U.S. Dollars), up from $35 million during 1979–1981. In 2000, the total cost of obesity in the United States was estimated to be $117 billion, of which $61 billion was for direct medical costs and $56 billion was for indirect costs. Among U.S. adults in 1996, $31 billion of treatment costs (in year 2000 dollars)—17 percent of direct medical costs—for cardiovascular disease was related to overweight and obesity.[2]

Research has shown that people living in sprawling areas drive more, while people living in compact communities are more likely to walk. Medical research has shown that walking and similar moderate physical activity is important to maintaining healthy weight and bestows many other health benefits.

Statistics on the relationship between the built environment and obesity have been quantified by a national study undertaken by Smart Growth America in a special report "*Measuring the Effects of Sprawl*." The study found that people who live in sprawling communities have a higher Body Mass Index (BMI) than those who live in communities that are designed to encourage walking.

The study also found a direct relationship between sprawl and chronic disease. The odds of having hypertension, or high blood pressure, are six percent higher for every increase in the degree of sprawl. The 25 most sprawling counties had average hypertension rates of 25 per 100 while the 25 least sprawling had hypertension rates of 23 per 100. This study concludes that people in sprawling areas walk less for exercise, which may help explain the higher obesity levels. But routine daily activity, such as walking for errands, may have a bigger role. When the researchers controlled for the amount of walking for exercise that people reported, they found that people in more, sprawling counties weigh more whether or not they walk for exercise. This suggests that people in sprawling areas may be missing out on significant health benefits that are available simply by walking, biking, climbing stairs, and getting physical activity as part of everyday life.[3]

Economy

Increased pedestrian and walking opportunities can greatly effect the quality of health for an aging population. The Partnership for Preservation has initiated a program entitled 'Creating Communities for Active Aging', a plan to increase biking and walking by older adults. Regular, moderate exercise by older adults can help delay, prevent, or lessen the onset of disabilities and many chronic diseases, such as coronary heart disease, diabetes, colon cancer, arthritis, and high blood pressure. Regular exercise can improve mood and alleviate depression. Greater health among older adults equates with longer independence and greater dignity.[4]

Recognizing the relationship of walking to economic development is a key component of making an area attractive to the workers of the New Economy and high technology economy. While studies measuring the economic impacts of walking are

[2] *National Center for Chronic Disease Prevention and Health Promotion. (http://www.cdc.gov/nccdehp/pe_factsheets/pe_pa.htm.)*

[3] *Smart Growth America. Measuring the Effects of Sprawl. (www.smartgrowthamerica.org/healthreport.html.)*

[4] *Partnership for Prevention. (http://www.prevent.org/projects.cfm?id=17.)*

limited, downtown revitalization efforts focused on the "Creative Class" recognize that creating a sense of place where people want to live and work focuses on creating public spaces that foster a sense of community. To be effective, these spaces need to be safe, comfortable, and a destination that encourages people to walk.

The City of Tallahassee, Florida recognized the relationship of walking to economic development in its *Bicycle and Pedestrian Master Plan*. It recommends the following actions to encourage economic development through pedestrian activity:

- *Make quality-of-place a central element of regional economic development efforts.*
- *Integrate amenities and natural assets into all aspects of regional economic development, talent attraction, and marketing efforts.*
- *Invest in the outdoor, recreational, and life-style amenities of the New Economy as a component of regional economic development and talent attraction efforts; for example, the creating climbing walls, mountain bike trails, bike paths, and roller-blading areas throughout the city and region. Explore the possibility of bringing in outdoor competitions and events such as triathlons, bike races, rowing competitions and similar efforts. Orient waterfront improvements to encourage active, recreational activities such as rowing, sailing, and windsurfing and improve public access for these activities.*
- *Upgrade the areas surrounding major universities and colleges and make them centers for New Economy recreational amenities.*
- *Establish better and more user-friendly transit connections from the university districts to downtowns and high technology business areas through the use of light rail, mass transit or bike lanes.*[5]

[5] *Tallahassee-Leon County Planning Department. Bicycle & Pedestrian Master Plan. (http://www.state.fl.us/citytlh/planning/trans/bikeped/masterplan/bpmwalkability.html.)*

Livability

When we walk we engage in "face to face" contact – the most personal type of interaction between strangers. It has long been recognized in the corporate world that managers must walk through their offices to understand what is really going on. The same can be said for communities. Walking provides opportunities for the type of face to face interactions that form the bonds of community and neighborhood. Creating places where people have the opportunity to meet their neighbors face to face and to interact with them in a manner that is not restricted by the speed or physical barrier of an automobile contributes to a sense of community. Creating places where people can walk from their home to school, a park or local shopping increases the opportunity for social interaction and as a result, enhances the potential for community building.

WHO SHOULD USE THIS DOCUMENT

This document will be helpful to anyone who is involved with pedestrian facilities, be it at the planning or facility design level within a city, the drawing level of a design firm, or the on-the-ground efforts of community associations or individuals.

HOW THIS DOCUMENT IS ORGANIZED

The MAG *Pedestrian Area Policies and Design Guidelines* are composed of three parts. The first section "Principles and Abilities of Pedestrians" provides a basic understanding of pedestrians and their movements, such as walking distances or the influences that effect a choice of walking over driving.

Why and How to Use This Document

IF

A ...the purpose is to consider whether a pedestrian facility qualifies for MAG funding?

B ...the purpose is for a municipal employee to use it to consider ways to improve the city or town's pedestrian environment?

C ...they are being used to design a pedestrian facility?

THEN

A, B and C – Read and understand *Principles and Abilities of Pedestrians.*

THEN

A Using the methodologies in the *Identify Pedestrian Facility Needs*, calculate the latent pedestrian demand and, if appropriate, the roadside condition to determine the need for improvements.

B Read through the *Recommendations* to determine what items can be implemented.

C Consult the section on *Design Principles* and the *Specific Design Guidelines*.

The second section, "Recommendations" includes policies for local governments and other entities that could result in better accommodation of pedestrians.

The final section "Design Principles" can be used by project designers, along with the "Specific Design Guidelines". The Guidelines delineate those physical improvements that are required for a facility to be safe, what can make it comfortable, or what will make it a pedestrian destination.

A glossary and bibliography follow these sections. The bibliography includes Internet links to current resources available on the subject of pedestrian facility design.

CHANGES IN THIS UPDATED DOCUMENT

This update has reorganized the information from the 1995 document. In the 1995 guidelines, the concepts of neighborhood, community, district, and campus were used to help identify the type and design of facilities for pedestrians. The guidelines suggested that areas that received little use (such as neighborhoods or communities) do not require extensive facilities to be functional. Additionally, the concepts of pedestrians by choice and necessity were introduced to assist in prioritizing investments - with the suggestion that it was most important to provide facilities for pedestrians by necessity.

These guidelines are premised on the concept that all facilities, no matter how frequently they are used, and by how many people, need to be safe. **Once basic safety has been addressed, enhancements that would encourage walking should be considered.** These enhancements make pedestrian facilities comfortable and areas where walking is the desired transportation mode into destinations. Additionally, since these guidelines follow the principles of universal design, all facilities are designed for maximum ease of use by any pedestrian, the concepts of pedestrians by necessity and choice have been removed. Anyone has the right to a safe pedestrian facility whenever they use it.

To help determine if an area should be designed as safe, comfortable, or a destination, this document assists the user in calculating the latent pedestrian

Fundamental Concepts: Safety, Comfort and Destination

Safety: All areas that people walk should be safe. The minimum levels of safety that should be met in all circumstances include providing a defined walkway that is for exclusive pedestrian use that is a minimum 6 feet wide, a walkable surface that is clear of impediments, has ramps, that is vertically or horizontally separated from vehicular traffic, and is lit at roadway crossings.

Comfort: Comfort encourages people to walk instead of use other modes of transportation. Facilities to encourage a comfortable pedestrian facility and environment include: wider walkways (7 to 12 feet or more); two or three options for vertically or horizontally separating the walkway from traffic; reducing the number of driveway crossings; places to sit; or added traffic calming features.

Destination: Destinations are places where walking is considered a (if not the) predominant mode of transportation. They often have extensive amenities which could include specialty paving, themed signs and site furnishings, decorative lighting fixtures, street vendors, and an active street.

demand for pedestrian facilities. **Areas with low latent demand should be, at the very least, safe.** Areas with medium latent demand should be designed to be safe and comfortable. Areas with high latent demand should be designed to be safe, comfortable, and as destinations. In the design guidelines, the concepts of safe, comfortable, and destination are correlated with a facility standard level.

This update also includes new research on the latest data on the economic, social and health benefits of walking, how to better serve the growing elderly population, and better address how facilities are designed for persons with disabilities.

A BRIEF HISTORY OF PEDESTRIAN PLANNING IN THE MAG REGION

In the United States, sidewalk awnings and pedestrian ways were common in most retail districts at the turn-of-the-century. Shopkeepers wanted to provide the best possible ambiance for potential customers, including protection from rain and sun. Major civic improvements usually involved the addition of street trees to shade pedestrian routes, especially

Central Avenue north of Fillmore Street.

1948: Central Avenue and Roosevelt Street.

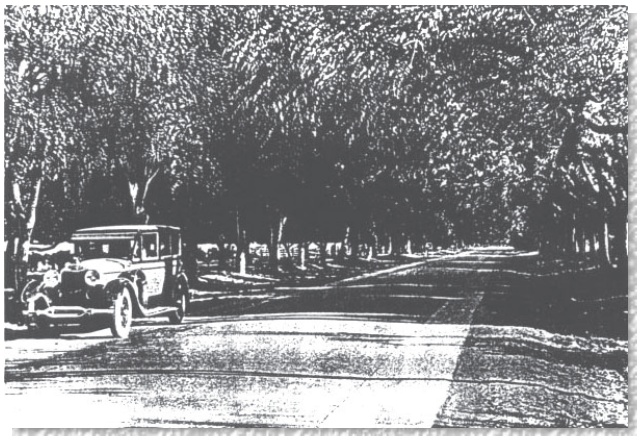
with the advent of the City Beautiful movement in the 1890s.

Historic photographs from the Phoenix Library Collection and the Arizona Collection archives show tree-lined streets which created comfortable pedestrian places in the MAG region during the early 1900s.

With the arrival of the automobile, new standards were developed to accommodate motorized transportation. Streets were widened as the number of vehicles increased. The pedestrian environment became compromised as streets were widened and canals buried, sidewalks were narrowed and trees cut down. Former planting areas became travel lanes for vehicles, and sidewalks were encumbered with utility poles and traffic signs.

In the past 40 years, there have been several important steps taken to address pedestrian needs throughout the MAG region. Despite these specific actions, many roadways are still constructed with little consideration for the pedestrian.

This report is part of a trend toward recovering space and amenities for pedestrians and creating viable pedestrian areas. Properly planned pedestrian areas encourage people to walk, thereby reducing the need for automobile travel. This in turn reduces traffic congestion, improves air quality, creates livable, sociable communities, and improves health, fitness, and independence of community residents.



Central Avenue north of Bethany Home Road.

1924: Town Ditch.